SOC
7170
.19

HARVARD UNIVERSITY

LIBRARY

OF THE

Museum of Comparative Zoology

E.D.S 678.7E

VOL. 14 PART 4

MUS. COMP. ZOOL
LIBRARY
DEC 23 1960
HARVARD
UNIVERSITY

TRANSACTIONS

OF THE

SOCIETY FOR BRITISH ENTOMOLOGY

World List abbreviation: *Trans. Soc. Brit. Ent.*

Edited by
E. J. POPHAM, D.Sc., Ph.D., A.R.C.S., F.R.E.S.
Department of Zoology, The University, Manchester 13
N. D. RILEY, C.B.E., F.Z.S., F.R.E.S.
7 McKay Road, Wimbledon, London, S.W. 20

Assisted by:
A. E. Gardner, F.R.E.S.; J. W. Heslop Harrison, D.Sc., F.R.S., F.R.S.E.; Francis Hemming, C.M.G., G.B.E., F.R.E.S.; W. D. Hincks, D.Sc., F.R.E.S.; H. E. Hinton, B.Sc., Ph.D., Sc.D., F.R.E.S.; B. M. Hobby, M.A., D.Phil., F.R.E.S.; H. C. Huggins, F.R.E.S.; G. J. Kerrich, M.A., F.L.S., F.R.E.S.; H. B. D. Kettlewell, M.A., M.B., B. Chir., F.R.E.S.; O. W. Richards, M.A., D.Sc., F.R.S., F.R.E.S.

DATE OF PUBLICATION, 30TH NOVEMBER 1960

Copies may be purchased from the Publications Secretary,
Department of Entomology, The Museum, Manchester 13

Price 5s. post free

Published for the Society
by the British Trust for Entomology Ltd.

BRITISH TRUST FOR ENTOMOLOGY LTD.,
41 QUEEN'S GATE, LONDON, S.W.7.

LIST OF PUBLICATIONS FOR SALE (ALL PRICES ARE POST FREE)

TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

GENERAL

A New Chapter in Zoological Nomenclature: The Reforms instituted by the Thirteenth International Congress of Zoology, Paris, July, 1948. By F. Hemming, 1950. 8 pp., 1s. 6d.

The Problem of stability in Specific Nomenclature, with special reference to cases where type material is no longer in existence. By F. Hemming, 1951. 16 pp., 2s. 0d.

Some adaptations of insects to environments that are alternately dry and flooded, with some notes on the habits of the Stratiomyidae. By H. E. Hinton, 1953. 20 pp., 3 figs., 5s. 0d.

The terms "Larva" and "Nymph" in Entomology. A summary of the views of W. E. China, H. Henson, B. M. Hobby, H. E. Hinton, T. T. Macan, O. W. Richards, T. Southwood, and V. B. Wigglesworth, followed by a review of The Terminology of Juvenile Phases of Insects by R. G. Davies, 1958. 10s. 0d.

ENTOMOLOGICAL FAUNA OF THE NEW FOREST SERIES

Introduction by J. Cowley, and Part 1, Odonata, by Lt.-Col. F. C. Fraser, 1950. 12 pp., 1s. 6d. Part 2, Neuroptera, by Lt.-Col. F. C. Fraser, 1951. 12 pp., 1s. 6d.

EPHEMEROPTERA

Descriptions of some Nymphs of the British Species of the Genus *Baëtis*. By T. T. Macan, 1950. 24 pp., 6 figs., 2 tables, 3s. 0d.

A Description of the Nymph of *Baëtis buceratus* with notes and a key to other species in the genus. By T. T. Macan, 1957. 8 pp., 3s. 6d.

The Life Histories and Migrations of the Ephemeroptera in a stony stream. By T. T. Macan, 1957. 28 pp., 12s. 6d.

ORTHOPTERA, Etc.

A Summary of the Recorded Distribution of British Orthopteroids. By D. K. McE. Kevan, 1952. 16 pp., 5s. 0d.

HEMIPTERA-HETEROPTERA

Contributions towards an Ecological Survey of the Aquatic and Semi-Aquatic Hemiptera-heteroptera of the British Isles.

Scottish Highlands and East and South England. By E. S. Brown, 1948. 45 pp., 7s. 6d.

The Ribble Valley (Lancashire South and Mid). By E. J. Popham, 1949. 44 pp., 1 map, 8s. 0d.

North-East Wales (Denbighshire and Merionethshire). By E. J. Popham, 1951. 12 pp., 2s. 6d.

The Hemiptera-Heteroptera of Kent. By A. M. Massee, 1954. 36 pp., 7s. 6d.

The Bionomics and Immature Stages of the Thistle Lace Bugs (*Tingis ampliata* H.S. and *T. cardui* L.; Hem., Tingidae). By T. R. E. Southwood and G. G. E. Scudder. 8s. 0d.

COLEOPTERA

The Aquatic Coleoptera of North Wales. By E. S. Brown, 1948. 15 pp., 1 fig., 1s. 0d.

The Aquatic Coleoptera of Wood Walton Fen, with some comparisons with Wicken Fen and some other East Anglian Fens. By F. Balfour-Browne, 1951. 36 pp., 4s. 6d.

TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 14 NOVEMBER 1960 PART IV

Three New Species of *Aphanogmus* (Hymenoptera: Ceraphrontidae) from Britain, with a Re-description of *A. fumipennis* Thoms., 1858, a Species New to Britain

By M. J. Parr

(Royal Technical College, Salford, Lancs.)

HARVARD UNIVERSITY

The species of *Aphanogmus* Thoms., 1858, described in this paper are represented by specimens in the British Museum (Nat. Hist.) and Manchester Museum collections.

The genus *Aphanogmus* is of wide distribution in the Northern Hemisphere, occurring in Europe (including Britain), Japan, West Indies and North America. Kieffer (1914) lists and describes briefly some 33 species of the world, while more recently Szelényi (1940) has mentioned 30 species in his revision of the females of Palaearctic forms. Kloet and Hincks (1945) list 7 species from Britain. No key to the British species of *Aphanogmus* exists, and the genus is very imperfectly known in this country.

The antennae provide the most important single character for the identification of the species of *Aphanogmus* and other genera of Ceraphrontidae. The antennae of Ceraphrontids differ in appearance depending on whether they are examined from the side or from above, etc.; it is therefore of paramount importance to state carefully the aspect from which the antennae are seen. Previous authors, with the exception of Roberti (1954), have tended to overlook this important point. Therefore the descriptions and figures of the antennae dealt with in this paper all represent antennae seen in external side view.

The nomenclature employed in this paper follows Richards (1956) except in the following cases: —

(1) *Frenum*—a posterior shelf-like border to the scutellum, usually marked by a series of pits.

(2) *LOL* (=*Lateralocellar line*)—the distance between the outer edges of one of the lateral ocelli and the median ocellus.

(3) *Median supraclypeal* ridge—a median longitudinal flattened ridge in the floor of the supraclypeal depression.

(4) *POL* (=*Postocellar line*)—the distance between the outer edges of the lateral ocelli.

(5) *Supraclypeal depression*—a depression (often semi-ellipsoidal) in the supraclypeal area.

It should be noted that except in the case of *Aphanogmus fumipennis* all detailed measurements refer to the holotype specimens only, and all measurements are in millimetres. The scale lines accompanying the figures all represent 0·10 millimetre.

APHANOGMUS VENUSTUS sp. n. (Figs. 1, 6, 10 and 14)

Female.

Head (Fig. 1)—Rather coarsely reticulate, black, shining, somewhat sparsely setose; from above approximately three-fifths as long as broad (0·181 : 0·290); ocelli large and distinct, lateral ocelli rather ovoid, forming a wide based triangle, POL : LOL : OOL = 0·090 : 0·070 : 0·048; distinct series of pits constituting the median occipital suture extends posteriorly from midway between lateral ocelli over vertex of head and joins well-marked posterior occipital carina; occiput markedly flattened; posterior margin of head clearly concave; head from front rather pear-shaped, longer than broad (0·305 : 0·290), eyes prominent and bulging; interocular distance (face) 0·162; supraclypeal depression distinct but with an ill-defined border, with a median longitudinal flattened ridge (median supraclypeal ridge) extending from clypeus approximately three-quarters the distance towards dorsal margin of depression; clypeus with fringe of longish hairs; eyes dark brown, large, longer than broad (0·162 : 0·131), almost ellipsoidal, with lower end only slightly tapered and posterior border unusually curved, setae short and sparse; malar space less than half as long as eye (0·070 : 0·162).

Antennae (Fig. 6)—Long, slender, distinctly thickened distally, with all segments elongated; scape dark brown, rather paler distally and proximally, roughly club-shaped, broadest subproximally, setose with ventral proximal setae directed towards antennal base; scape as long as the four following segments together (0·218 : 0·218); pedicel broader distally than proximally, much longer than broad (0·060 : 0·025); segment 3 very slender, cylindrical, more than three times as long as broad (0·055 : 0·018); segment 4 shorter and broader than segment 3 (0·048 : 0·020); tapered proximally; segment 5 slightly less than twice as long as broad (0·045 : 0·024); segment 6 the same length as segment 5, but broader (0·026); segment 7 more than $1\frac{1}{2}$ times as long as broad (0·048 : 0·030), same length as segment 4 but $1\frac{1}{2}$ times as broad as that segment; segment 8 markedly cylindrical, broader than any of the previous segments except the scape (0·034) and equal in length with segment 3 (0·055); segment 9 longer than any of the previous flagellar segments except pedicel (0·057), broader than segment 8 (0·040 : 0·034) dorsal side of segment bulging; segment 10 clearly shorter than segments 8 and 9 together (0·105 : 0·115), broader than segment 9 (0·043 : 0·040), tip only bluntly pointed; whole flagellum setose, setae on segment 10 and ventral surfaces of segments 7-9 tending to be much shorter

than elsewhere; all flagellar segments and pedicel dark brown with intersegmental membranes paler where visible.

Mesosoma (Fig. 10)—Mostly black or extremely dark brown, slender, less than three-fifths as broad as long (0·240 : 0·430), four-fifths as broad as deep (0·240 : 0·30), moderately glossy, setose, coarsely reticulate, posteriorly with two blunt dorsolateral spines; pronotum small, rugose, scarcely visible from above; mesoscutum strongly arched when seen from side; from above with rounded shoulders, transverse (0·240 : 0·145), with an indistinct medial scutal line extending for only very short distance posteriorly, separated from axillae by scutal suture which curves strongly posteriorly in region of wing bases; axillae separated by a median longitudinal suture, setae pointing obliquely towards mid-line, series of ill-defined pits constituting the rather weak scutellar suture; scutellum elongated (0·20 : 0·130), arched, with pronounced terminal frenum, rather sparsely setose; mesepisternum black, glossy, naked, with elongated longitudinal reticulations; metanotum indistinct; propodaeum short, slanting obliquely downwards from scutellum.

Forewings (Fig. 14)—Hyaline, pubescent, tips broadly rounded, less than 3 times as long as broad (0·790 : 0·283), fringing setae of varying lengths and absent altogether from much of dorsal margin, longest setae (length approximately 0·040) on proximal costal and distal dorsal margins, with one long seta of same length accompanied by 3 short setae on dorsal margin approximately 0·230 from wing base; setae on upperwing surface directed towards wing tip except for irregular patch near mid dorsal area where setae are directed towards radial vein, setae absent on basal area; sub-marginal vein brown, distal $\frac{1}{4}$ thicker than remainder except extreme base, angled concavely midway between base and distal tip; marginal vein brown, paler at extreme tip, almost as thick as distal portion of sub-marginal vein, tapered at tip, length 0·090; radial vein pale brown, only slightly longer than marginal vein (0·095 : 0·090), weakly curved, tip somewhat swollen, origin about 0·010 from distal tip of marginal vein.

Hindwings.—Shorter (0·730 : 0·790) and slightly more than half as broad (0·145 : 0·283) as forewings; without veins; longest setae (0·070) on distal dorsal margin, 3 hamuli on front edge at point approximately 0·420 from wing base.

Legs.—Coxae, trochanters, femora and tibiae dark brown, proximal half of hind coxae especially dark, almost black, tarsi and all leg joints paler, sandy brown; hind coxae with row of setae (each approximately 0·025) on middle posterior border, distal anterior border fairly thickly setose.

Metasoma.—Extremely dark glossy brown (almost black), paler brown terminally; longer than mesosoma (0·540 : 0·430), but terminal segments probably extruded artificially; laterally compressed, postero-ventrally sharply keeled; anterior face almost

vertical, marked by distinct circular ridge; non-setigerous except for terminal segments and antero-ventral area.

Total length.—Approximately 0·90 mm.

Material.—Dorset: Sherford Bridge, 28.vii.1954 (*J. A. & D. J. Clark*). Holotype female, deposited in the British Museum (Nat. Hist.).

Male unknown.

Notes on the Status of *A. venustus* sp.n. (♀)

This species appears to be nearest to *A. gracilicornis* Först., 1861 (=*A. patrius* Szel., 1938), but a certain amount of confusion seems to exist about Förster's species. Both Förster's own description (Förster, 1861) and Kieffer's description (Kieffer, 1914) are inadequate.

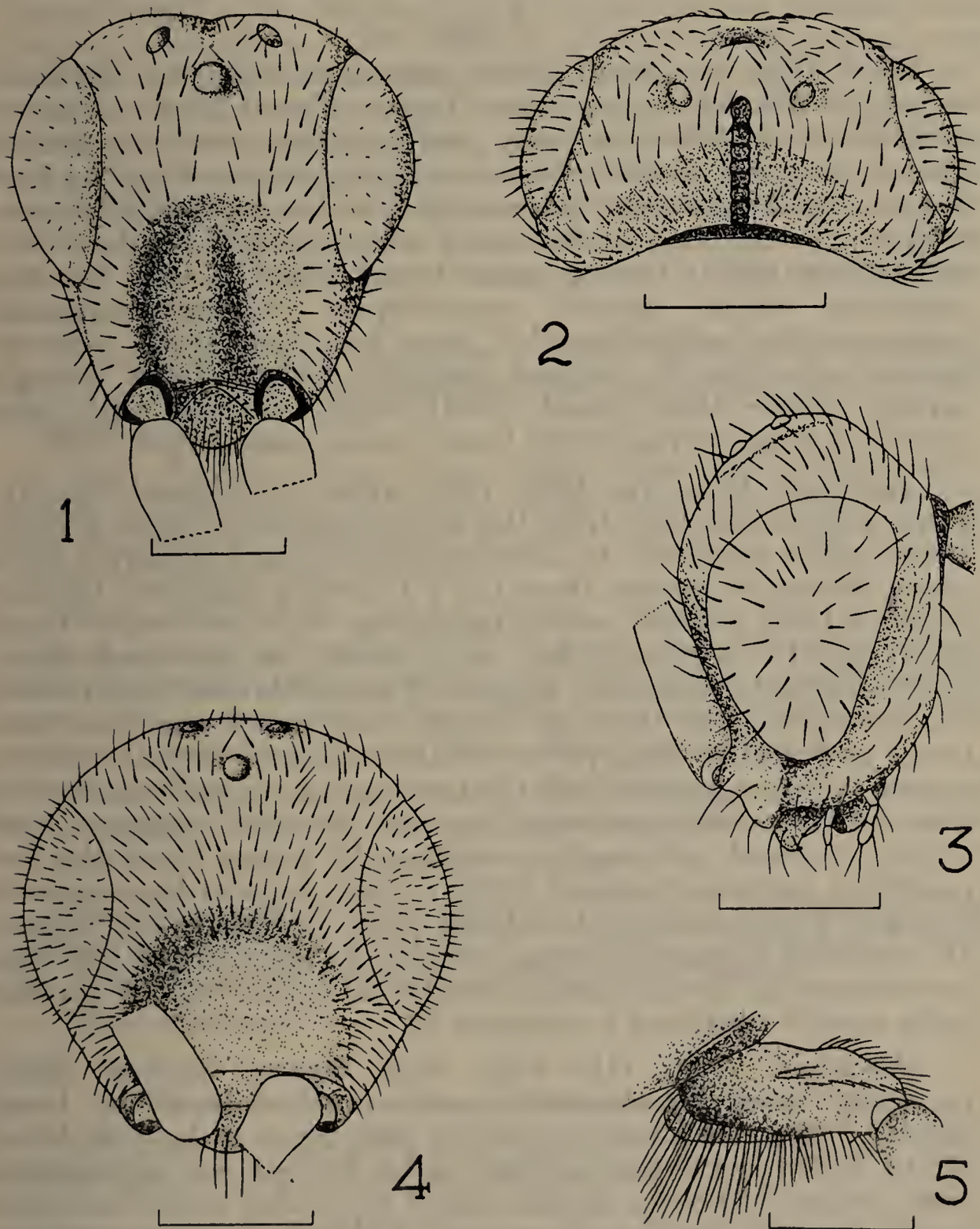
Szelényi (1938) in his description of *A. patrius* (which he later equates with *A. gracilicornis*) states that segment 10 of the female antenna is almost as long as the three preceding segments together, but later (Szelényi, 1940) in his key to Palaearctic species (females), modifies this to read: "Endglied länger als die beiden vorhergehenden zusammen". However, the last antennal segment of *A. venustus* sp. n. is distinctly *shorter* than segments 8 and 9 together. Some other important differences between *A. venustus* and *A. patrius* (=*gracilicornis*) are summarised below:

A. patrius (=*A. gracilicornis*) (♀) (ref. Szelényi, 1938).	*A. venustus* sp. n. (♀)
(1) Scape almost as long as 5 following segments together.	Scape equal in length to 4 following segments together (0·218 : 0·218).
(2) Pedicel almost same length as segment 3 (0·046 : 0·044).	Pedicel distinctly longer than segment 3 (0·060 : 0·055).
(3) Shortest antennal segment number 7 (0·038).	Shortest antennal segment number 5 (0·045).
(4) Mesosoma breadth, length and height = 0·224 : 0·350 : 0·308.	Mesosoma breadth, length and height = 0·240 : 0·430 : 0·300.
(5) Wings brownish.	Wings hyaline.
(6) Radial vein : marginal vein lengths = 0·112 : 0·108.	Radial vein : marginal vein lengths = 0·095 : 0·090.

It is also interesting to note that *A. venustus* resembles five specimens in the British Museum (Nat. Hist.) labelled *"A. gracilicornis"* but differs in the following principal features:

"A. gracilicornis" (♀).	*A. venustus* sp. n. (♀).
(1) Antennal segment 10 much shorter than segments 8 and 9 together (0·093 : 0·140).	Antennal segment 10 only slightly shorter than segments 8 and 9 together (0·105 : 0·115).

(2) POL : LOL : OOL = 0·090 : 0·070 : 0·055.	POL : LOL : OOL = 0·090 : 0·070 : 0·048.
(3) Head breadth : interocular distance = 0·290 : 0·180.	Head breadth : interocular distance = 0·290 : 0·162.
(4) Hind coxae with single long seta placed postero-distally.	Hind coxae with row of shortish setae posteriorly.



Figs. 1-5.—1, *Aphanogmus venustus* sp. n., head from front; 2, *A. cylindricornis* sp. n., head dorsum; 3, *A. reticulatus* sp. n., head and base of scape from left side; 4, *A. fumipennis* Thoms., head from front; 5, *A. fumipennis* Thoms., right coxa from right side.

(5) Forewing tips smoky brown (as in *A. apicalis* Szel., 1938).	Forewings entirely hyaline except for the veins.
(6) Body colour mainly dark brown.	Body colour mainly black.

APHANOGMUS CYLINDRICORNIS sp. n. (Figs. 2, 7, 11 and 15)

Female

Head (Fig. 2).—From above approximately twice as broad as long (0·260 : 0·129); very dark brown, almost black; minutely reticulate and clothed in fairly profuse short setae; moderately shining; strongly marked median occipital suture extending from between the lateral ocelli posteriorly over the markedly flattened occiput; ocelli form wide based triangle, POL : LOL : OOL = 0·077 : 0·060 : 0·070; frontal space broad (face) (0·165), the eyes appearing widely spaced; supraclypeal depression present, approximately semi-ellipsoidal; eyes large and with posterior margin only slightly curved, anterior margin more strongly curved, longer than broad (0·131 : 0·092), covered with setae similar to those on rest of the head; malar space length 0·038.

Antennae (Fig. 7).—Only very weakly thickened distally; scape dark brown, seen from the side appearing to taper distally, setae mainly restricted to anterior proximal and posterior distal areas, distinctly shorter than the 4 following segments together (0·155 : 0·180); pedicel brown, more than twice as long as broad (0·047 : 0·021); segments 3-9 very similar in size and shape, approximately cylindrical; segment 3 rather thinner than pedicel, but approximately the same length; segment 4 less than two-thirds as broad as long (0·039 : 0·021); segments 5-9 all approximately the same length (0·037) but increasing gradually in breadth from 0·021 to 0·026 and with the more proximal segments very slightly tapered proximally; segment 10 longer than the two preceding segments together (0·105 : 0·088), broader than segment 9 (0·029 : 0·026), tapering to a blunt point; segments 3-10 brown; all segments with many setae, varying in length from less than one-quarter to three-quarters breadth of segments, the shortest setae mainly restricted to segment 10.

Mesosoma (Fig. 11).—Very dark brown, almost black, reticulate, mostly moderately glossy; much deeper than broad (0·284 : 0·200) and about one and a half times as long as broad (0·315 : 0·200); pronotum scarcely visible from above; mesoscutum very arched, without a median scutal line, setae longer and more sparse than on head and arranged in definite tracts; scutellum approximately same length as mesoscutum with axillae, arched, more than two-thirds as broad as long (0·115 : 0·150), with covering of setae similar to that on mesoscutum, frenum rather weak and terminal; axillae well formed but not very clearly defined

anteriorly, with curved posterior borders; mesepisternum more glossy than mesoscutum or scutellum but still reticulate, non-setigerous; metanotum very narrow and indistinct; propodaeum very transverse from dorsal aspect, slanting obliquely antero-dorsal to posteroventral seen from lateral aspect.

Forewings (Fig. 15).—Very pale sandy-yellow, almost hyaline; slightly less than three times as long as broad (0·713 : 0·241); surface moderately setose; fringed with setae except on proximal dorsal margin which is naked but for a group of six isolated setae; longest setae (from 0·035-0·053) on distal dorsal margin; wing veins brown, the radial vein paler brown than marginal and sub-marginal veins; sub-marginal vein angled approximately one-third of length from wing base, thin, the distal quarter widening gradually, length approximately 0·30; marginal vein as stout as distal one-quarter of sub-marginal vein and of equal length (0·085 : 0·085); radial vein very short (0·015), origin same distance (0·015) from distal tip of marginal vein, more slender than marginal vein.

Hindwings.—Almost hyaline; nearly as long as forewings (0·713 : 0·663), but narrower than forewings by half (0·122 : 0·241); without veins.

Legs.—Legs medium brown, with tarsi and distal tips of coxae, trochanters, femora and tibiae light brown; hind coxae without fringe of long setae, but each coxa with a single seta on posterior margin near distal tip.

Metasoma.—Dark, glossy brown, longer than mesosoma viewed from side (0·380 : 0·315); laterally compressed, especially towards posteroventral side; ventral surface of segment 1 setose, especially posteriorly; other visible metasomal segments with setae on ventral and lateral faces; shoulders reticulate.

Total length.—Approximately 0·830-0·860 mm. The paratype is a slightly larger specimen than the holotype and has the posterior metasomal segments telescoped.

Material.—Devon : Dartmoor, ix.1932 (*J. F. Perkins*), holotype female, deposited in B.M. (N.H.). Lincs. : Grantham, 2.x.1951 (*H. Britten*), female paratype, in Manchester Museum.

Male unknown.

Notes on the Status of *A. cylindricornis* sp. n. (♀)

This species appears to be closest to *A. compressus* Ratz., 1852, but differs mainly in the following characters:

A. compressus Ratz., 1852 (♀).	*A. cylindricornis* sp. n. (♀).
(1) Pleurae lineated.	Pleurae (episternum) reticulate.
(2) Wings hyaline.	Wings very pale sandy-brown,

(3) Body unusually narrow.	Body only as narrow as is typical for the genus *Aphanogmus*.
(4) Antennae thickened distally, but not clubbed.	Distal thickening of the antennae very weak.

Two other species are also recorded as having a very short radial vein, but differ from *A. cylindricornis* principally in the following characters:

A. microneurus Kieff., 1907 (♀).	*A. cylindricornis* sp. n. (♀).
(1) Head and mesosoma matt.	Head and mesosoma moderately shining.
(2) Antennal segments 4-9 not, or scarcely longer than thick.	Antennal segments 4-9 distinctly longer than thick.

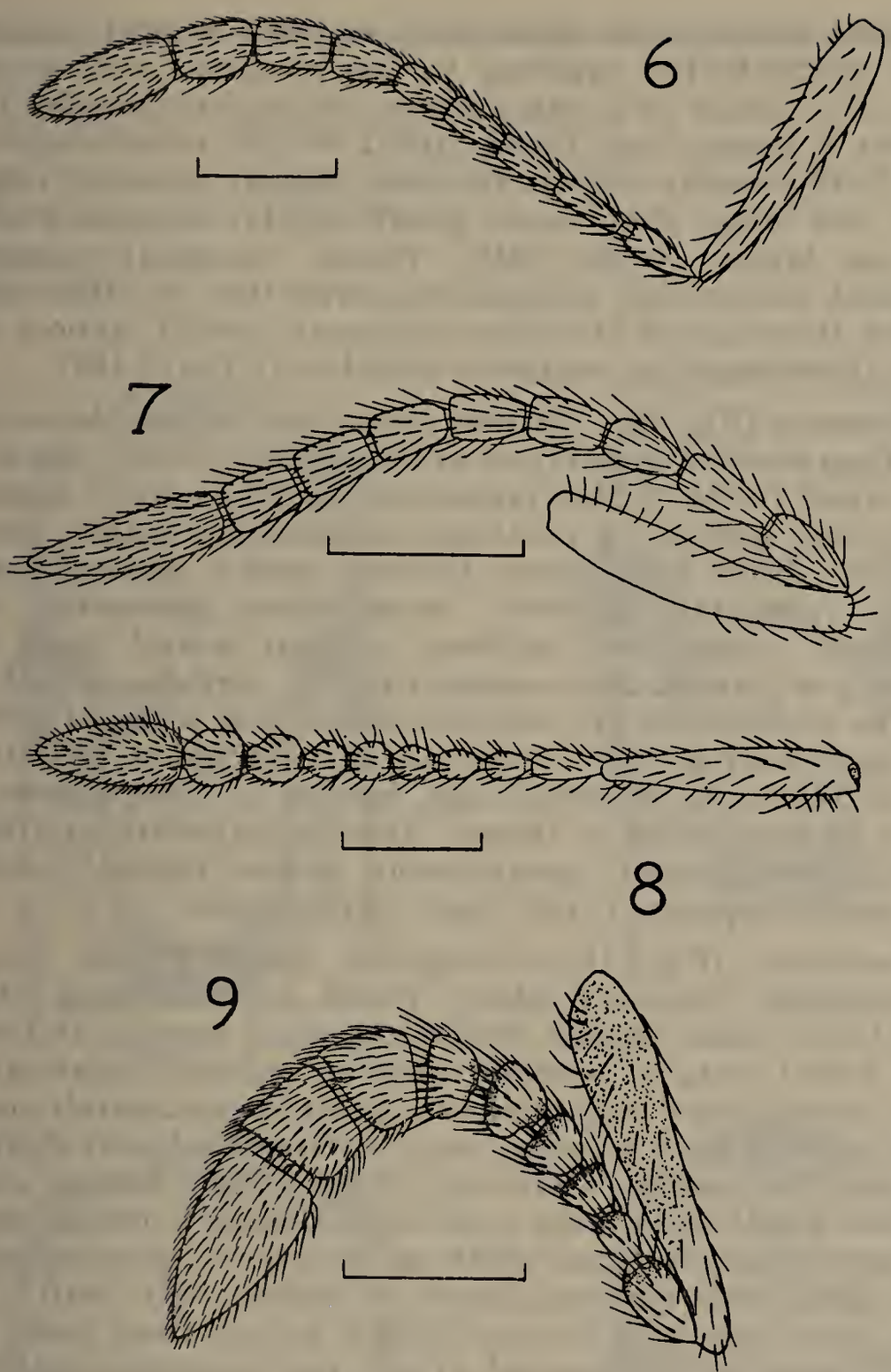
A. eurymerus Först., 1861 (♀).	*A. cylindricornis* sp. n. (♀).
(1) Flagellar segments short (all transverse except last 2); flagellum very thick-set.	Flagellar segments elongated; not at all transverse.
(2) Wings hyaline.	Wings very pale sandy-brown.
(3) Body length: 0·6.	Body length: 0·85.

Three other species (*A. tenuicornis* Thoms., 1858, *A. gracilicornis* Först., 1861, and *A. procerus* Szelényi, 1940) appear to have similar antennal characters to *A. cylindricornis* but differ from this species in other important characteristics.

APHANOGMUS RETICULATUS sp. n. (Figs. 3, 8, 12 and 16)

Female

Head (Fig. 3).—Very nearly circular in outline when seen from front, slightly broader than long (0·274 : 0·259), slightly less than two-thirds as deep as long when seen from side (0·164 : 0·259); most of head strongly reticulate, pubescent, very dark brown (almost black), moderately glossy; eyes large, pale red-brown, almost triangular with a long, straight posterior edge, slightly less than two-thirds as broad as long (0·110 : 0·167); ocelli forming a broad based triangle, POL : LOL : OOL = 0·066 : 0·058 : 0·058; occiput distinctly flattened; posterior occipital carina prominent; broad median occipital suture represented by a line of pits from just anterior of POL to posterior occipital carina, distance between eyes across frontal space (face) 0·155; malar space with greatest length of 0·030; supraclypeal depression well marked but relatively shallow.



Figs. 6-9.—6, *A. venustus* sp. n., right antenna; 7, *A. cylindricornis* sp. n., left antenna; 8, *A. reticulatus* sp. n., right antenna; 9, *A. fumipennis* Thoms., right antenna.

Antennae (Fig. 8).—All segments setose and medium brown, last (10th) segment forming a distinct club; scape, widest (0·033) at a point about one-quarter of total length from proximal end, very slightly shorter than the 5 following segments together (0·175 : 0·180); pedicel elongated, much more slender than the scape (0·033 : 0·020), roughly barrel-shaped but with proximal end narrower than distal end; segment 3 much shorter than pedicel (0·030 : 0·050) and narrower than pedicel (0·018 : 0·020), proximal

end more slender than distal end; segment 4 much longer than broad (0·029 : 0·019), tapering to the proximal end; segment 5 about same length as fourth segment, but slightly broader (0·024); segment 6 longer than broad (0·031 : 0·026), barrel-shaped; segment 7 very similar to sixth but very slightly broader; segment 8 larger, and longer than broad (0·042 : 0·031); segment 9 about as long as broad (0·042 : 0·042), rather rounded; segment 10 elongated, sub-conical, pubescence shorter than on other segments, broader than any of the other segments (0·045), almost as long as the three preceding segments together (0·106 : 0·109).

Mesosoma (Fig. 12).—Strongly reticulate, shining brown-black; more than two-thirds as broad as long (0·230 : 0·330); much higher than broad (0·315 : 0·230), posteriorly with two short dorsolateral spines, but without a posterior dorsomedian spine; pronotum distinctly visible from above, laterally with a distinct horizontal groove (pronotal groove); mesoscutum distinctly square-shouldered, transverse, without median scutal line; axillae distinctly separated from mesoscutum by very fine scutal suture, but true scutellar suture well developed as a series of prominent pits; scutellum arched, reticulate and elongated (0·150 : 0·125), frenum distinct on posterior edge, borders of mesepisternum with edging of pits; sides of thorax strongly reticulate and shining; metanotum indistinct; propodaeum almost vertical posteriorly, only weakly separated from each metapleuron.

Forewings (Fig. 16).—Elongated (0·795 : 0·240), very pale yellow-brown, almost hyaline; distal dorsal margin straight; fringed with setae, longest (0·050) on costal margin and extreme distal dorsal margin; without setae on extreme proximal dorsal margin except for 6 long setae at a point approximately one-third length of wing from proximal end; submarginal vein slightly less than half the length of forewing (0·365 : 0·795), brown, widest at base and distal two-thirds, outer edge slightly concave; marginal vein approximately same width as the tip of submarginal vein, more than three-quarters length of radial vein (0·075 : 0·091); radial vein very pale brown, thicker at tip than base, almost straight, only slightly curved at tip, origin approximately 0·008 from tip of marginal vein.

Hindwings.—Shorter than forewings (0·730 : 0·795), more than six times as long as broad (0·730 : 0·116).

Legs.—Coxae (especially the posterior pair) very dark brown, paler distally, posterior coxae length 0·165, without fringe of long setae, naked on posterior margin except for single short seta near distal tip; trochanters and femora moderately dark brown, tibiae slightly lighter, distal tips of all segments pale; tarsi very pale.

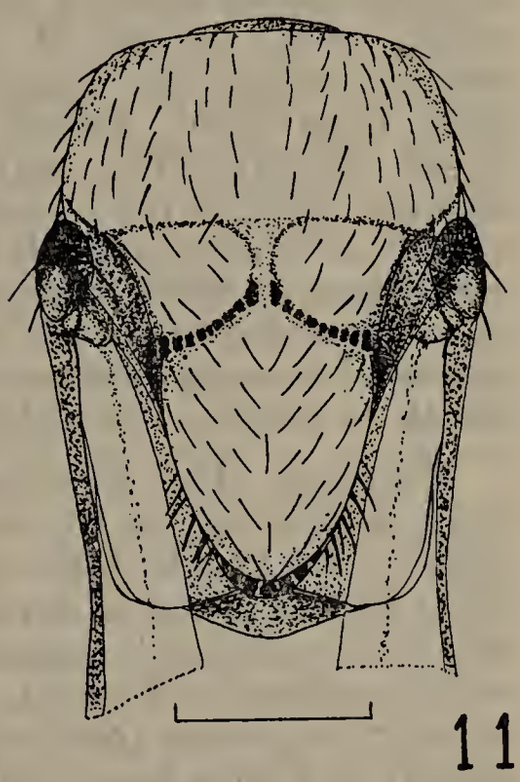
Metasoma.—Very dark glossy brown, reticulate only on shoulders and dorsal side of posterior segments; posterior sharply keeled ventrally; scattered, longish setae on posterior segments,

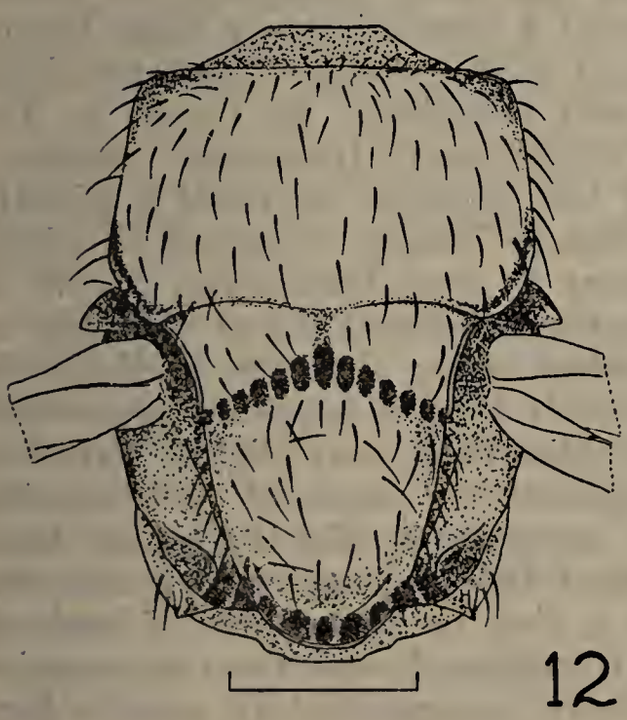
ventral side of first segment and shoulders; length approximately 0·365.

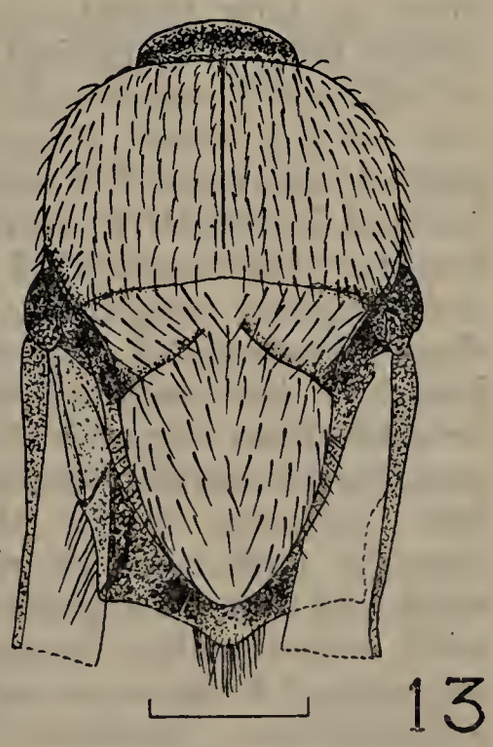
Total length.—Approximately 0·90 mm.

Material.—Lincs., Grantham, 28.ix.1951 (*H. Britten*). Holotype female, in Manchester Museum.

Male unknown.







Figs. 10-13.—10, *A. venustus* sp. n., mesosoma dorsum; 11, *A. cylindricornis* sp. n., mesosoma dorsum; 12, *A. reticulatus* sp. n., mesosoma dorsum; 13, *A. fumipennis* Thoms., mesosoma dorsum.

APHANOGMUS FUMIPENNIS Thomson, 1858 (Figs. 4, 5, 9, 13 and 17)

A re-description based on British and Swedish specimens

Female

Head (Fig. 4).—Less than two-thirds as long as broad when seen from above (0·165 : 0·279), shining black, setose, but with no obvious pattern; ocelli distinct and form wide based triangle, POL : LOL : OOL = 0·075 : 0·066 : 0·066; well marked median occipital suture extends posteriorly from midway between lateral ocelli, over vertex of head and joins posterior occipital carina; occiput not markedly flattened, vertex gently curved; head from front almost circular, very slightly longer than broad (0·283 : 0·279), with eyes bulging slightly; interocular distance (face) 0·160; supraclypeal depression distinct, approximately semi-ellipsoidal, but with an ill-defined border; clypeus with fringe of hairs, longest 0·040; eyes moderately large, longer than broad (0·149 : 0·116), with anterior margin more curved than posterior margin, pubescent, with individual setae similar in length to those on rest of head.

Antennae (Fig. 9).—Clearly clubbed and with several transverse segments; scape dark brown proximally, lighter brown distally, tending to taper from base to distal end, although true basal portion is not so broad as the proximal one-fifth and therefore whole segment appears rather club-shaped, sparingly and rather coarsely pubescent; scape distinctly longer than the five following segments together (0·217 : 0·184); pedicel roughly barrel-shaped, but with base distinctly narrower than distal end, length 0·050; segment 3 more pear-shaped than pedicel, about three-fifths as long (0·030 : 0·050) and less than two-thirds as broad (0·020 : 0·0275) as pedicel; segment 4 approximately same length as segment 3 and roughly conical with a rather blunt proximal end, at the distal (broadest) end practically as broad as the pedicel; segments 5-9 inclusive all distinctly transverse; segment 5 equal in length to segment 4 but broader; segment 6 slightly broader than segment 5 and slightly longer, broadest at distal end, tapered proximally, segment 7 very transverse, about as short as segment 3, but broader than segment 6 and virtually as broad as the scape at its broadest part; segment 8 distinctly broader than segment 7 and much longer, tapering somewhat proximally; segment 9 virtually cylindrical, very slightly broader, and distinctly longer than segment 8; segment 10 tapering distally, near base as wide as segment 9, slightly longer than segments 8 and 9 together (0·110 : 0·105); all segments pubescent with longest setae arranged in a ring on distal rim of each of segments 2-9, setae on segment 10 rather shorter than on remaining segments; segments 3-10 brown, approximately same colour as distal part of scape.

Mesosoma (Fig. 13).—Very dark brown, virtually black, five-eighths as broad as long (0·250 : 0·40), deeper than broad

(0·30 : 0·250), mostly moderately glossy and strongly setose, posteriorly with one dorsomedian (thickly setose) and two dorsolateral spine-like projections; pronotum scarcely visible from above; mesoscutum very arched when seen from side, from above with rounded shoulders, transverse (0·250 : 0·140) with median scutal line extending posteriorly almost to axillae, clearly separated from axillae by transverse groove (scutal suture); axillae well defined, but actually fusing in the mid line, median portion of fine scutellar suture being absent, setae pointing obliquely to mid-line; scutellum elongated (0·180 : 0·133), arched, longer than mesoscutum (0·180 : 0·140), confluent with axillae in extreme anterior median area, lacking terminal frenum; mesepisternum highly glossy, black, without setae, but with fringe of long and short setae on posterior margin; metanotum very short, over-shaddowed by scutellum; propodaeum almost vertical.

Forewings (Fig. 17).—Slightly dusky, pubescent, approximately three times as long as broad (0·794 : 0·256); fringed with setae of varying lengths, longest (0·060) on proximal costal margin from wing base to distal end of marginal vein, setae on distal dorsal margin length approximately 0·034, no setae on proximal half of dorsal margin, except for group of 6 long setae (0·050) at a distance of approximately 0·230 from wing base; submarginal vein brown, distal $\frac{1}{4}$ more robust and darker brown than the remainder, angled concavely at point 0·170 from base; marginal vein as stout as distal one-quarter of submarginal vein, length 0·090; radial vein curved, longer than marginal vein (0·140 : 0·090), having its origin approximately 0·015 from distal tip of marginal vein, light brown and increasing slightly in breadth from base to tip.

Hindwings.—Shorter (0·710 : 0·794) and about three-fifths as wide (0·150 : 0·256) as forewings; without veins; with longest setae (0·10) on distal dorsal margin.

Legs.—All parts dark brown except distal tips of tibiae and tarsi; posterior coxae (Fig. 5) with prominent fringe of long setae (0·085) on posterolateral proximal margin, posterior distal margin with short spine.

Metasoma.—Dark glossy brown, longer than mesosoma (0·460 : 0·40); laterally compressed, posteroventral area sharply keeled; first segment large; pubescent ventrally and on shoulders (anterodorsal area), posterior segments somewhat setose, otherwise gaster polished and non-setigerous.

Total length.—Approximately 0·93-1·14 mm. for British examples, but a Swedish specimen in Lund University Museum measured 1·36 mm.

Material.—Devon: Dartmoor, ix.1932, 1 ♀ (*J. F. Perkins*) (B.M. (N.H.) sp. redescribed).

Note:—This specimen is rather smaller than several of the others examined.

The following records of this species indicates its wide distribution in Britain:

CUMBERLAND: Skirwith, 24.vi.1953, 1 ♀ (*H. Britten*) (Manchester Museum).

CHESHIRE: Leasowe, 23.iv.1949, 1 ♀ (*H.B.*) (M.M.).

STAFFS.: Madeley, 18.v.1936, 1 ♀ (*H.B.*) (M.M.).

LINCS.: Ropesley Wood, 30.ix.1951, 1 ♀ (*H.B.*) (M.M.).

HANTS.: New Forest, Wilverley Plantation, in fallen leaves, 7.iii(?).1950, 2♀♀ (*J. H. Murgatroyd*) (M.M.).

Notes on the Status of *A. fumipennis* Thoms., 1858

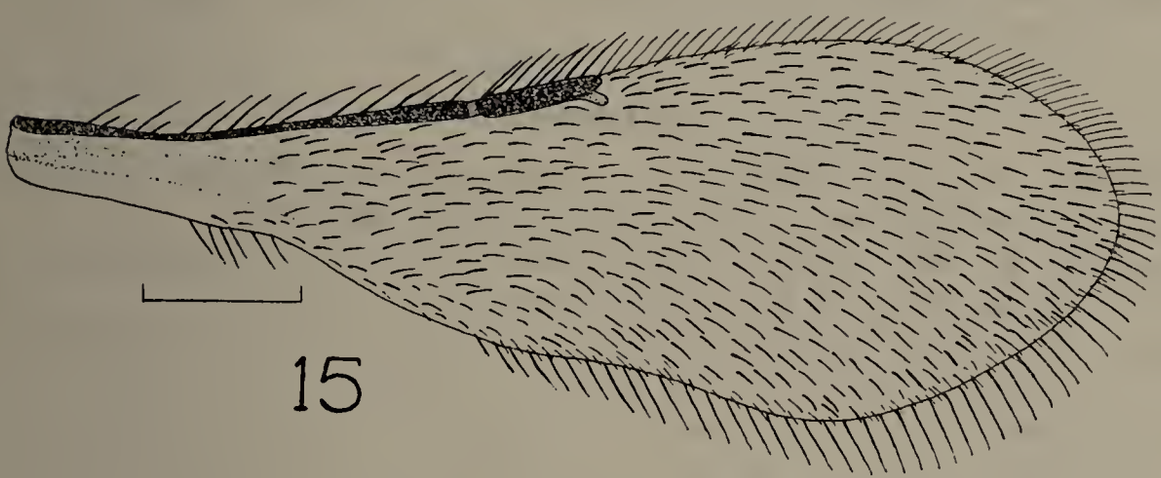
A. fumipennis runs easily in Szelényi's key (females of Palaearctic species (1940)), but reference to Kieffer (1914) and Thomson (1858) indicates some differences between these descriptions and actual specimens of this species. Both Swedish and British specimens have been examined; these all exhibit features which differ from the descriptions of Kieffer and Thomson:—

A. fumipennis (♀) (ref. Thomson (1858) and Kieffer (1914)).	*A. fumipennis* (♀) (Swedish and British specimens examined by the author).
(1) Median scutal line indistinct.	Median scutal line very obvious.
(2) Head as broad as thorax.	Head equal in breadth to thorax, or clearly broader than thorax.
(3) Radial vein about twice the length of marginal vein.	Radial vein: marginal vein ratio variable, but is usually approximately 1·5:1·0; no specimens were seen with the radial vein even approaching twice the length of marginal vein.

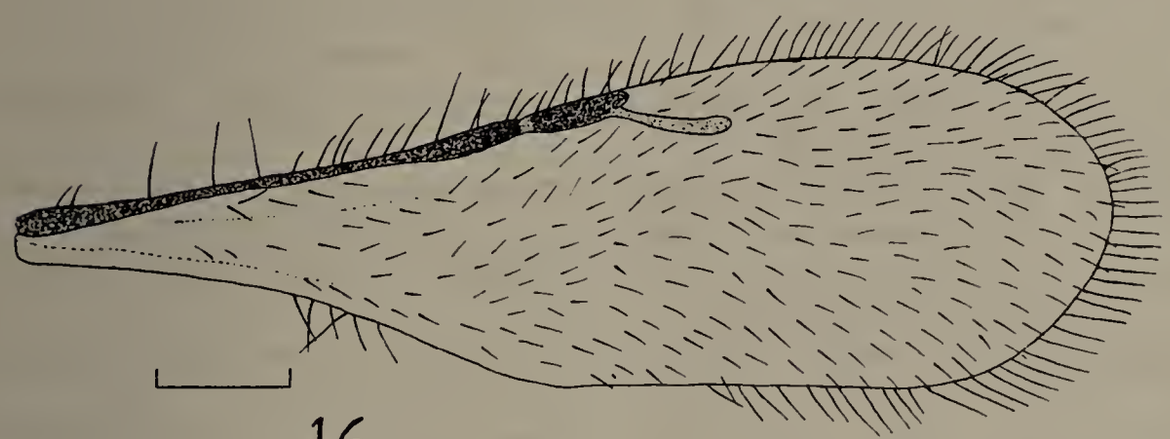
In Kieffer (1914), *A. fumipennis* runs directly to *A. compressiventris* Först., but differs from this species as follows:—

A. compressiventris Först., 1861 (♀) (ref. Szelényi, 1940).	*A. fumipennis* (♀).
(1) Antennal segment 5 approximately quadrate in outline.	Antennal segment 5 distinctly transverse.
(2) Antennal segments 6 and 7 only weakly transverse.	Antennal segments 6 and 7 strongly transverse.
(3) Head and thorax "leather-like".	Head and thorax shining, without reticulations.

14



15



16

17

Figs. 14-17.—14, *A. venustus* sp. n., right forewing; 15, *A. cylindricornis* sp. n., right forewing; 16, *A. reticulatus* sp. n., right forewing; 17, *A. fumipennis* Thoms., right forewing.

Acknowledgments

I wish to express my sincere thanks to Dr. W. D. Hincks (Manchester Museum) and Mr. J. F. Perkins (British Museum (Nat. Hist.)) for their encouragement, advice and for allowing me to borrow and examine specimens in their care. To Professor Per Brinck (Lunds Universitets) I am very grateful for the opportunity of examining Swedish specimens of *Aphanogmus fumipennis* and *A. hyalinipennis*; I am also greatly indebted to Mr. A. Davies and Mr. P. St. J. Edwards (Royal Technical College, Salford), Mr. L. James (Greenford County Grammar School), Miss J. Fairclough, Miss C. Parr and my wife for their valuable help.

References

Ashmead, W. H. 1893. A monograph of the N. American Proctotrypidae. *Bull. U.S. nat. Mus.*, **45**: 133-5.

Ashmead, W. H. 1904. Descriptions of New Hymenoptera from Japan, I. *J. N.Y. ent. Soc.*, **12**: 71.

Bakke, A. 1954. Insects Reared from Spruce Cones in Northern Norway. *Norsk. ent. Tidsskr.*, **9**: 195-8.

Dalla Torre, C. G. de. 1890. Zur Synonymie der Proctotrupiden. *Wien. ent. Ztg.*, **9**: 97.

Dalla Torre, C. G. de. 1898. *Catalogus Hymenopterorum.* Lipiae. **5**: 524.

Förster, A. 1861. Ein Tag inden Hochalpen. *Progr. Realschule, Aachen* **5**: 39-40.

Kieffer, J. J. 1914. Serphidae (=Proctotrupidae) et Calliceratidae (=Ceraphronidae). *Das Tierreich*, **42**: 63-124. Berlin.

Kloet, G. S., and Hincks, W. D. 1945. *A Check List of British Insects.* Stockport.

Marshall, T. A. 1873. *A Catalogue of British Hymenoptera*; *Oxyura*: 3.

Priesner, H. 1936. *Aphanogmus steinitzi* spec. nov., ein Conioptery-giden Parasit. *Bull. Soc. ent. Egypte*, **20**: 248-51.

Ratzeburg, C. 1852. *Die Ichneumon oder Forstinsekten*, **3**. Berlin.

Richards, O. W. 1956. Handbooks for the Identification of British Insects. Hymenoptera (Introduction and Keys to Families). *R. ent. Soc. Lond.*, 1956.

Roberti, D. 1954. I Simbionti degli acari fitofagi (*Aphanogmus parvulus* sp. n. *Boll. Lab. Ent. agr. Portici.*, **13**: 298-300.

Schmiedeknecht, O. 1930. *Die Hymenopteren Nord-u. Mitteleuropas.* Jena.

Szelényi, G. 1938. Ein Beitrag zur Kenntis der Palaearktischen Arten der Gattung *Aphanogmus* Thoms., 1858 (Hym. Proctotr.). *Folia ent. hung.*, **3**: 85-91.

Szelényi, G. 1940. Die Paläarktische Arten der Gattung *Aphanogmus.* Thoms. (Hym. Proct.). *Ann. hist-nat. Mus. hung.*, **33**: 122-36.

Thomson, C. G. 1858. Skandinaviens Proctotruper. *Aefvers, K. Vet. Acad. Förhandl.* **15**: 287-305.

LEPIDOPTERA

List of the Lepidoptera of Dorset. Part 2. By W. Parkinson Curtis, 1947. 138 pp., 4 pls., 11s. 0d.

Postural Habits and Colour-Pattern Evolution in Lepidoptera. By M. W. R. de V. Graham, 1950. 16 pp., 4 pls., 4 figs., 4s. 0d.

The Life History and Behaviour of *Coleophora alticolella* Zell. By A. M. Jordan, 1958. 16 pp., 10s. 0d.

HYMENOPTERA

The Hymenoptera Aculeata of Bedfordshire. By V. H. Chambers, 1949. 56 pp., 3 maps, 10s. 0d.

An Introduction to the Natural History of British Sawflies. By R. B. Benson, 1950. 98 pp., 9 pls., 10s. 0d.

Notes on Some British Myrmaridae. By W. D. Hincks, 1950. 42 pp., 5 figs., 1 pl., 5s. 0d.

The British Species of the Genus *Ooctonus* Haliday, with a Note on some Recent Work on the Fairy Flies (Hym., Myrmaridae). By W. D. Hincks, 1952. 12 pp., 8 figs., 4s. 0d.

The Natural History of some *Pamphilius* Species (Hym., Pamphiliidae). By V. H. Chambers, 1952. 16 pp., 4 pls., 5s. 0d.

A Study of some British Species of *Synergus*. By J. Ross, 1951. 16 pp., 4s. 0d.

A Revision of Section I (Mayr, 1872) of the Genus *Synergus* (Hym., Cynipidae) in Britain, with a Species New to Science. By R. D. Eady, 1952. 12 pp., 4 pls., 4s. 0d.

The British Ants Allied to *Formica fusca* L. (Hym., Formicidae). By I. H. H. Yarrow, 1954. 16 pp., 8 figs., 3 maps, 5s. 0d.

The British Ants Allied to *Formica rufa* L. (Hym., Formicidae). By I. H. H. Yarrow, 1955. 48 pp., 58 figs., 1 map, 10s. 6d.

Keys to the British Genera and Species of Elachertinae, Eulophinae, Entedontinae and Euderinae (Chalcoidea). By M. W. R. de V. Graham, 1959, 36 pp., 12s. 6d.

A Contribution to the Biology and Taxonomy of the British Species of the Genus *Eudecatoma* Ashmead (Eurytomidae). By M. F. Claridge, 1959. 20 pp., 7s. 0d.

The British Species of the Genus *Alaptus* Haliday in Walker (Chalcidoidea Mymaridae). By W. D. Hincks, 1959. 12 pp., 7s. 6d.

Notes on Pteromalidae (Chalcidoidea) with descriptions of New Genera and Species. By M. W. R. de V. Graham, 1959. 16 pp., 7s. 6d.

A Key to the Species of Ants (Formicidae). B. C. A. Collingwood, 1958. 28 pp., 10s. 6d.

Systematic Notes on British and Swedish Cleonymidae, with Description of a New Genus (Chalcidoidea). By G. J. Kerrich and M. W. R. de V. Graham, 1957. 48 pp., 15s. 0d.

DIPTERA

An Outline of a Revised Classification of the Syrphidae (Diptera) on Phylogenetic Lines. By E. R. Goffe, 1952. 28 pp., 3 figs., 6s. 0d.

A Revision of the British (and notes on other) Species of Lonchaeidae (Diptera). By J. E. Collin, 1953. 28 pp., 3 pls., 3 figs., 6s. 0d.

The Distribution and Habits of the British Conopidae (Dipt.). By Kenneth G. V. Smith, 1959. 20 pp., 10s. 6d.

Notes on the Identification of *Limnophila* Larvae (Tipulidae). By Allan Brindle, 1958. 12 pp., 5s. 0d.

A Short Synopsis of the British Scatophagidae. By J. E. Collin, 1958. 20 pp., 7s. 6d.

A Review of the British Subfamilies and Genera of the Family Muscidae. By E. C. M. D'A. Fonseca, 1956. 16 pp., 6s. 0d.

ORDERS, accompanied by the appropriate remittance, should be addressed to Dr. W. D. HINCKS, Manchester Museum, Manchester 13.

CONTENTS.

PARR, M. J. Three New Species of *Aphanogmus* (Hymenoptera: Ceraphrontidae) from Britain, with a Re-description of *A. fumipennis* Thoms., 1858, a Species New to Britain.

T. BUNCLE AND CO. LTD., ARBROATH.

MCZ ERNST MAYR LIBRARY
3 2044 148 058 738

Date Due